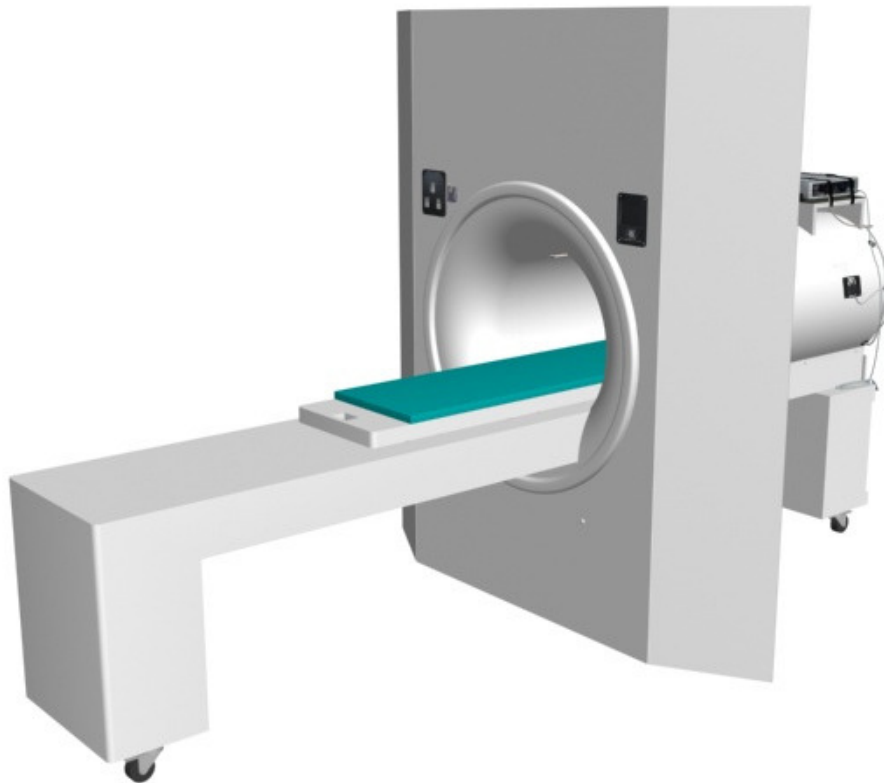


MRI SIMULATOR™

SIMULATE THE MRI ENVIRONMENT



SIMULATOR USE CASES

Acclimation

Introduces participants to an authentic scanning environment, eliminating failed scans caused by claustrophobia and anxiety. Participant can be habituated to the MRI environment reducing participant dropout to <5%.

Research

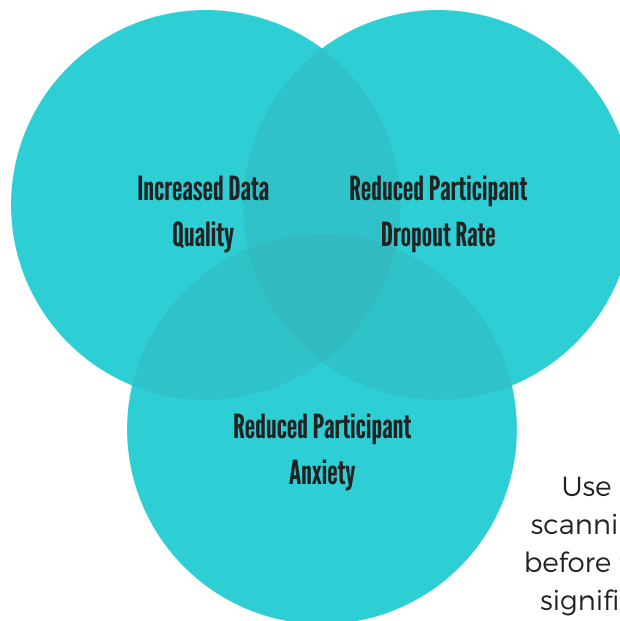
Allows researchers to conduct pilot studies and train participants outside of the magnet. Using the MoTrak system, researchers can train participants to minimize head and body motion, increasing data quality.

Staff & Student Training

Used to quickly train academic, research, or hospital personnel on best practices in the MRI environment in an inexpensive, safe, and controlled setting.

BENEFITS OF MRI SIMULATION

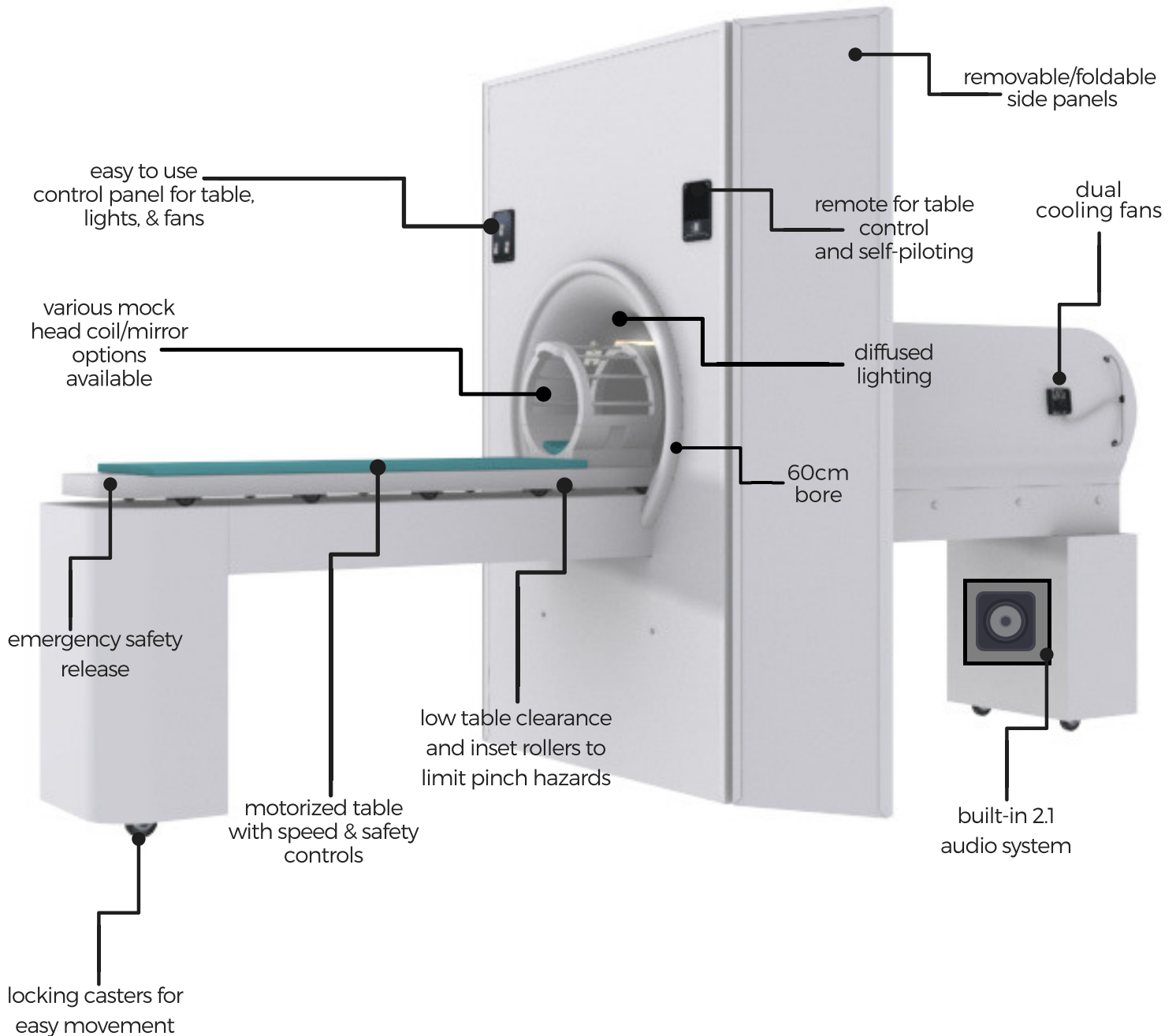
Simulation of the MRI environment before scanning has been shown to reduce motion in the scanner and significantly improve the quality of imaging.



Reduction in participant dropout rate with the introduction of patient comfort programs highlighted by the use of the MRI simulator is proven to be extremely effective.

Use of the mock scanning techniques before fMRI scans can significantly reduce participant anxiety, ensuring that data quality is not affected.

SIMULATOR OVERVIEW



TECHNICAL SPECIFICATIONS



Dimensions

Max. sizing (L x W x H)	134 1/4" x 79 1/2" x 81 3/4"
Min. Sizing (L x W x H)	134 1/4" x 48" x 81 3/4" – side panels removed or folded back
Simulator Weight	450 lbs.
Bore Diameter	60cm
Shipping Dimensions	88" x 48" x 55" wooden crate; 825 lbs.

Audio

Internal audio system	24W subwoofer / two 8W satellite speakers
Input connector	3.5mm Stereo Audio Jack

Power

Power Requirements	120 VAC, 60Hz, 4A 230 VAC, 50Hz, 2A, CE Compliant
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Regulatory

CE Compliant

Materials

Bore Façade, Entry, Tube, & Extension Panels	White Plastic
Participant Table, Pedestals, & Table Base	White Laminated wood

Weight Limits

Table Max. Weight	275 lbs.
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Controls

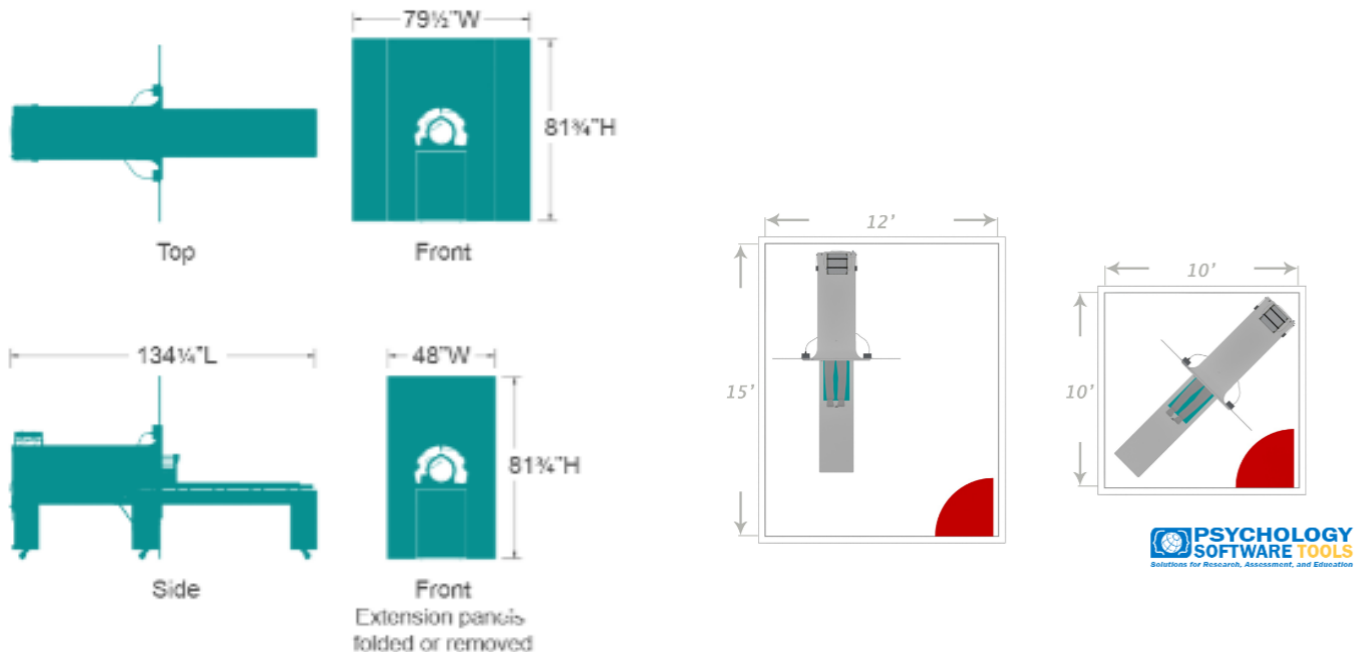
Front Control Panel	Participant table movement, Lighting (on/off), Fan (on/off)
Remote Control*	Controls Participant table movement
Side Control Panel	Side-located; switch controls power to table, lights, fans, audio system

Included Components

Large Components	Bore, Façade, Participant Table, Participant Table Base, Two (2) Extension Panels
Assembly Components	Two (2) front panel attachment bolts and wing nuts, two (2) locking table alignment knobs
Power/Audio/Control/Comfort	2.5m (+/- 0.2m) power cable, 3m (+/- 0.2m) M to M audio cable, battery-powered remote control*, pad for participant table

* = For Domestic U.S. Models only

DIMENSIONS & INSTALLATION



What kind of space is required?

The MRI Simulator is designed to fit in a standard office space without any structural modifications. All components included with the MRI Simulator can easily fit through a standard 3'x7' office door. Standard power input options (120V or 220V where required) mean that the system does not require special power considerations.

How is the simulator shipped and assembled?

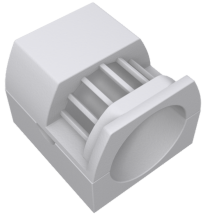
The MRI Simulator is typically shipped in a single crate, and can be completely unpacked and assembled by a single person. The system is shipped as 6 main components, and once unpacked, can be easily moved into position and assembled without tools. In most cases, the entire simulator can be assembled and ready to use within 45 minutes. Technicians from PST are also available for on-site installation and training.

Can the simulator be moved?

Moving the MRI Simulator in the case of maintenance, storage, or relocation can easily be done as the system does not require any tools for disassembly and can fit through a regular office door. The entire system is mounted on lockable casters and can be moved around the room as necessary.

COMPONENTS

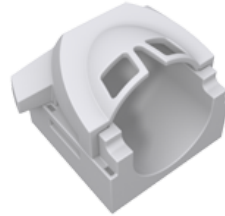
MOCK HEAD COILS



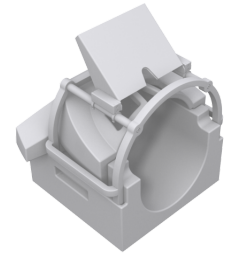
GE-Style
Mock Head Coil



Siemens-Style
Mock Head Coil



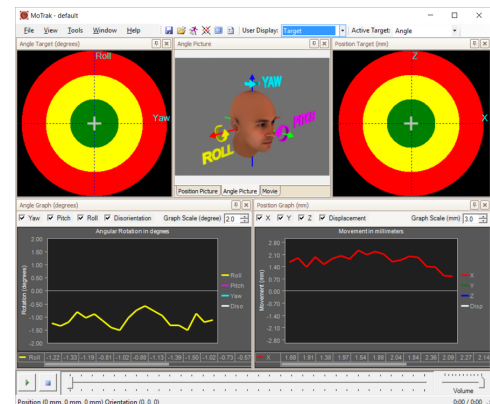
32-Channel Siemens-Style
Mock Head Coil



32-Channel Siemens-Style
Mock Head Coil
with rear-facing mirror

MoTrak

MoTrak is a head-mounted motion tracking system capable of monitoring head motion and angular rotation along the X, Y, and Z axes. With this data, the MoTrak system can modulate audio and/or video output, allowing the researcher to provide positive and/or negative feedback to train participants to remain still - increasing MRI imaging data quality.



SimFx

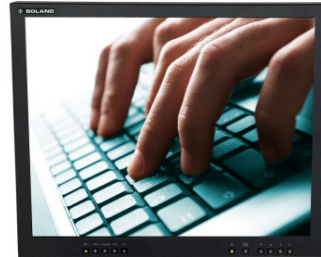
SimFx™ software simulates the ambient scanner sound and the active scanning noise of the MRI environment. Using high-quality fiber-optic microphones, a variety of ambient and active scanner sounds from both GE and Siemens scanners were recorded and are available to use with the SimFx Sound Simulation System.



ADDITIONAL ENHANCEMENTS

VISUAL PRESENTATION PRODUCTS

- Premium LCD Display System with
- Rear-Projection Display System



AUDIO PRESENTATION PRODUCTS

- Avotec Silent Scan 3300 Patient Communication System
- OptoAcoustics FOMRI-III Fiber Optic Microphone for fMRI



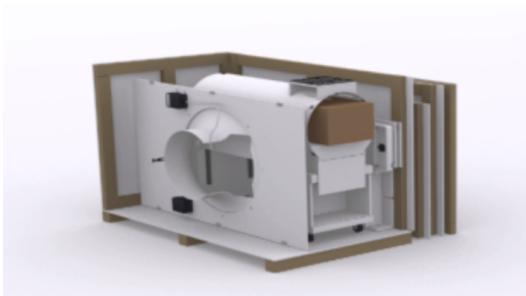
STIMULUS RESPONSE

- Celeritas Fiber Optic Response System



ON-SITE INSTALLATION & TRAINING

- PST Technicians will perform on-site installation and training, reducing setup time and ensuring staff are knowledgeable about the system.



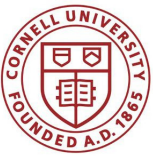
REFERENCE SITES

Below are just a few of the sites where our MRI Simulators are in current use:

- Alberta Children's Hospital
- Brown University
- Children's Hospital of Philadelphia
- Children's Hospital of Pittsburgh
- Duke University
- Durham University
- East China Normal University
- Harvard University
- Linköping University
- Monash University
- Nationwide Children's Hospital
- Shenzhen University
- New York University
- NIH/NIMH
- Ohio State University
- Pennsylvania State University
- Princeton University
- San Diego State University
- Stanford University
- University of California - Davis, Irvine
- University of Michigan - Ann Arbor
- University of Sydney
- Washington University - St. Louis
- Yale University

PUBLICATIONS

Several studies demonstrating MRI Simulator efficacy for participant acclimation:



Epstein, J. N., Casey, B. J., Tonev, S. T., Davidson, M., Reiss, A. L., Garrett, A., ... & Jarrett, M. A. (2007). Assessment and prevention of head motion during imaging of patients with attention deficit hyperactivity disorder. *Psychiatry Research: Neuroimaging*, 155(1), 75-82. (cornell University)



de Bie, H. M., Boersma, M., Wattjes, M. P., Adriaanse, S., Vermeulen, R. J., Oostrom, K. J., ... & Delemarre-Van de Waal, H. A. (2010). Preparing children with a mock scanner training protocol results in high quality structural and functional MRI scans. *European journal of pediatrics*, 169(9), 1079-1085.



6632.2012.06457.x.Grey SP, Price G, Mathews A (2000). Reduction of anxiety during MR imaging: a controlled trial. *Magn Reson Imaging* 18:351-355.



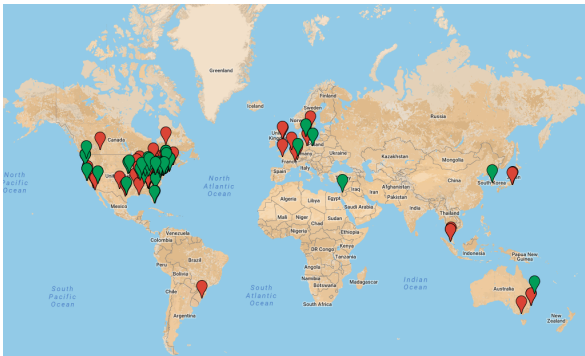
Greene, D. J., Black, K. J., & Schlaggar, B. L. (2016). Considerations for MRI study design and implementation in pediatric and clinical populations. *Developmental cognitive neuroscience*, 18, 101-112.

RESOURCES

To request a quotation for the MRI Simulator or any other PST products, please visit our website (www.pstnet.com) and submit a quote request. A member of our solutions team will be in touch within 24 hours with pricing information and to answer any additional questions you might have.

Alternatively, our Solutions team can be reached by contacting PST via phone (412.449.0078), fax (412.449.0079), or email (sales@pstnet.com). To provide a quotation, our team will need the following information:

- Name
- Institution
- E-mail Address
- Shipping Address
- Phone Number
- Product(s) of Interest



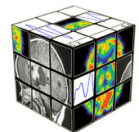
For international customers, purchases may also be made through the PST Global Re-seller Network.

Please visit our website to find a re-seller near you.

Or stop by our booth at one of the following conferences!



- SfN
- ISMRM
- OHBM
- CNS
- Psychonomics
- MPA



MORE ABOUT US

Psychology Software Tools, Inc. was founded with the vision of creating innovative and affordable technologies and solutions which improve the efficacy of human behavioral research, assessment, and education. Our goal is to consistently provide products and services to our customers which increase their productivity, effectiveness, and confidence in addressing the challenges they face in these diverse disciplines.



OTHER PST PRODUCTS



Stimulus Presentation Software



E-Prime Extensions for fMRI



Response and Stimulus Device



MRI Digital Projection System